Claims

[1] An automatic air purifying window, comprising a sheet of glass and a window stile for holding the sheet of glass, wherein the window stile comprises:
a discharge part including an indoor air induction port to induce indoor air through a filter attached to a front side of an upper window stile, an upper guide member to guide air current induced from the indoor air induction port, and an indoor air discharge port to discharge some portion of the indoor air induced from the indoor air induction port to the outside through a filter attached to an upper portion of a rear side of a side window stile along a discharge passageway formed inside the upper guide member;
an induction part including an outdoor air induction port to induce outdoor air through a filter attached to a lower portion of the rear side of the side window stile, a lower guide member to guide air current induced from the outdoor air induction port, a purification cartridge embedded at an inner portion of a lower window stile to purify air, flowing along a fluid passageway formed inside the lower guide member and passing through the purification cartridge, a light-transmission portion formed at a rear side of the lower window stile such that light can arrive at the purification cartridge within the lower window stile, and a purified air discharge port adapted to be opened/closed to the front of the lower window stile for allowing exchange of the purification cartridge and to allow the purified air passing through the purification cartridge to be induced into the room through a filter attached to the center of the purified air discharge port; and
an indoor air circulation passageway formed in the window stile such that some portion of air induced through the indoor air induction port can be induced into the room after passing through the purification cartridge and the purified air discharge port along the indoor air circulation passageway.

[2] The window as set forth in claim 1, wherein the purification cartridge comprises:
a photocatalyst filter having a plurality of protrusions protruded to the outside at an upper portion of a rear side of the photocatalyst filter, and a plurality of inclined surfaces formed from a lower portion of the rear side of the photocatalyst filter to the bottom of the photocatalyst filter, each of the protrusions having activated carbon contained therein and a photocatalyst coated thereon; and
a case for enclosing the photocatalyst filter, and having a transparent window at

a rear side of the case, a plurality of induction holes on an inclined surface at a lower portion of the rear side of the case, and a ventilation filter at a front side of the case.

[3] The window as set forth in claim 1 or 2, further comprising:
a plurality of skew plates provided to the discharge passageway formed at the inside of the upper guide member, and to the fluid passageway formed at the inside of the lower guide member, respectively, for guiding the air current along a serpentine path; and
check valves provided to the discharge passageway formed at the inside of the upper guide member, and to the fluid passageway formed at the inside of the lower guide member, respectively, for preventing reverse flow of air.

[4] The window as set forth in claim 3, further comprising a dust discharge aperture for discharging dust accumulated at a lower end of the purification cartridge to the outside.

[5] The window as set forth in claim 4, further comprising: a vent hole formed at an upper portion at one side of the purification cartridge; and a discharge hole formed at the rear side of the purification cartridge to be communicated with the vent hole.

[6] The window as set forth in claim 5, further comprising an air induction amount-regulating valve provided to the fluid passageway formed at the inside of the lower guide member for regulating an induced amount of air.